

WHAT IS CLAIMED IS:

Sub A2
1. A method for loading unaligned data stored in a plurality of memory locations, comprising:
loading a first part of said unaligned data into a first storage location;
rotating said first part of said unaligned data in said first storage location from a first position to a second position;
loading a second part of said unaligned data into a second storage location;
rotating said second part of said unaligned data in said second storage location from a third position to a fourth position; and
combining said first storage location with said second location using a logical operation into a result storage location.

2. The method of claim 1 wherein said first storage location is a first register, said second storage location is a second register, and said result storage location is a result register.

3. The method of claim 2 wherein said registers are 64-bits in length.

4. The method of claim 1 wherein the logical operation is a bit-wise OR operation.

5. The method of claim 1 further comprising performing an operation selected from a group consisting of masking, zero-extending, and sign extending, on said first storage location, when said first part of said unaligned data is in said second position of said first storage location.

Sub A2
6. The method of claim 1 wherein said rotating is performed in two phases comprising a first phase in which a major rotation is performed and a second phase in which a minor rotation is performed.

7. A method for storing data into an unaligned plurality of memory locations, comprising:
rotating a first part of said data in a first storage location from a first position to a second position;

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5 storing said data located in second position in said unaligned plurality of
6 memory locations at an address given by a first pointer;
7 rotating a second part of said data in a second storage location from a third
8 position to a forth position; and
9 storing said data located in forth position in said unaligned plurality of
10 memory locations at an address given by a second pointer.

1 8. The method of claim 7 wherein said first pointer comprises a high
2 address and said second pointer comprises a low address.

1 9. The method of claim 8 wherein said data is stored in said unaligned
2 plurality of memory locations inclusively between said high address and said low address.

1 10. The method of claim 7 wherein said rotating is performed in two
2 phases comprising a first phase in which a major rotation is performed and a second
3 phase in which a minor rotation is performed.

1 11. The method of claim 7 wherein said first storage location is a first
2 64-bit register, said second storage location is a 64-bit second register, and said result
3 storage location is a 64-bit result register.

1 12. The method of claim 7 wherein said data is selected from a group
2 consisting of data 8, 16, 32, and 64 bits in length.

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